REMARKS/ARGUMENTS

Claims 1-10 are pending in the Application. Claims 1-10 are submitted to clearly distinguish patentably over the prior art in their present form. No new matter is involved.

In Paragraph 2 on page 2 of the Office Action, claims 1-4 and 7-9 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent 5,402,485 of Takato et al. In Paragraph 11 on page 5 of the Office Action, claims 5 and 10 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Takato in view of U.S. Patent 4,458,112 of Svala. These rejections are respectfully traversed.

The Takato et al. reference describes a two-wire termination impedance generation circuit of a subscriber circuit including differential amplifiers, which is provided with a network circuit including capacitors and resistors, an input point, and current sources, the capacitor being comprised of series connected first and second capacitors, the resistor being comprised of series connected first and second resistors and having a high band bypass capacitor connected at the intermediate connecting point of the same, and the resistor being comprised of a complex termination resistor forming an internal termination impedance and a series connected complex termination resistor and complex termination capacitor being connected directly to the telephone line as an external termination impedance, wherein the frequency characteristics can be improved in three ways.

However, Takato et al. pertains to and is only applicable in a SLIC (Subscriber Line Interface Circuit). In contrast, the present invention is directed to an OLIC (Office Line Interface Circuit). These parts are always at the opposite ends of a pairline, and they therefore function quite differently.

Claim 1 defines an electric device (201, 301) for connecting an analogue data transfer device (202) by means of a control unit (203) to a digital transfer system.

The electric device of claim 1 includes "a current amplifier arrangement (214, 314, 340) for feeding a certain current to a twin cable, a first current switching device (219) for switching a first control current to the current amplifier arrangement, and a second current switching device (220) for switching a second control current to the current amplifier arrangement". Consequently, the current amplifier arrangement of the electric device of claim 1 loops a certain current fed into the twin cable from its outer end. Thus, the single current amplifier loops in and out a certain current and is therefore an OLIC.

Claim 1 of Takato et al. defines a two-wire termination impedance generation circuit which includes "a pair of current sources which amplify said output current flowing into said input point and supply said current to said telephone line producing said line voltage". This means that in Takato et al. a pair of current sources feed out current and are part of an SLIC. In the case of the present invention, the pair of current amplifiers (314, 340) are actually a single amplifier (like claim 1 defines 214), the internal design of which only happens to include two parallel connected component amplifiers.

Nor are there features or similarities with respect to an SLIC which are also advantageously employed in connection with an OLIC, particularly with respect to the basic design of an OLIC in the manner of the present invention. The basic requirements for such devices are mostly very different. An OLIC must loop a DC current, whereas an SLIC generates DC current and feeds it to the pairlines. The current directions are also opposite in the two cases, requiring different circuits if implemented by electronic means as amplifiers always are. An OLIC must be either high impedance (in the on-hook state) or it must be of a certain DC-impedance in the off-hook state. The DC-impedance of an SLIC is fixed at all times, but it must sense the on/off hook state sent from the other end of the line by

a telephone set (or by an OLIC, which simulates a telephone set). This requirement that an OLIC must change its DC capabilities, while an SLIC is fixed in this sense, makes the basic design of an OLIC different from an SLIC. There are many patents relating to SLIC's, and none of them describe anything usable for an OLIC. None of the cited references even mention anything applicable to an OLIC. Therefore, it cannot be obvious to one skilled in the art to apply improvements for an SLIC to an OLIC circuit.

A principal feature in accordance with the present invention is the current amplifier arrangement (214, 314, 340) and the connections thereof to the other parts within the electric device (201, 301). On the other hand, Takato et al. is concerned with controlling the impedance of a certain SLIC. This is clearly different from the present invention. Nothing in the description or in the claims of Takato et al. describe or suggest a similar single current amplifier arrangement as in the case of the amplifier arrangement (214, 314, 340) of the present invention. Takato et al. uses two current amplifiers which are always connected between one wire of the pairline and one of the DC feeding points. In this connection, it should be noted that the current amplifier in Fig. 8 of Takato et al. does not even show DC feeding points at all, because such reference is not interested in how DC current is fed. The sole concern of the reference is the control of impedance at voice frequencies.

Nor does the fact that both the present invention and Takato et al. use current mirrors mean that the present invention is in any way suggested by the reference. The present invention is not about current mirrors, as such, but rather current mirrors as they are connected with other portions of the system, as described in claim 1 of the present application. Takato et al. does not disclose or suggest the combination of elements which characterizes the present invention.

The use of current mirrors within an OLIC design cannot be obvious to one of ordinary skill in the art (because they are used in an SLIC design), because in an OLIC they are controlling a single current amplifier, which is floating, or which is in a high impedance state in relation to the ground potential. On the other hand, in an SLIC, the current output devices are always in a low impedance state relative to ground potential. Therefore, the general environment is substantially different. A current mirror is a well known means to convey current information between different parts in an electronic circuit. However, they are used differently in the case of the present invention when contrasted with Takato et al.

The fact that the current mirror DC-feeding requires higher and lower voltages than voltages handled by the current mirror is a well known requirement for these building blocks. However, not even such common feature means that there is similarity between the present invention and Takato et al., because the circuitry in each case is substantially different.

The arrangement described in the Takato et al. reference is directed to impedance control for terminating a pairline. Because the OLIC in accordance with the invention is connected to the pairline (as is the SLIC of Takato et al.) it must have a controlled impedance at voice frequencies (or more commonly at the data frequencies). The manner in which the present invention accomplishes impedance control is completely different from that utilized in Takato et al. The present application does it in a similar way, as shown in Fig. 1 of the Application (prior art). However, the present invention does not concern impedance control at data frequencies. As described in connection with Fig. 2 of the Application, a certain impedance is presented to the pairline by switching a real impedance between the pair of wires. This is completely different from the manner in which Takato et al. accomplishes impedance control. The manner in which the present Application

accomplishes this is described at lines 12-14 of page 6 and at line 24 of page 8 through line 7 of page 9. The fact that impedance control in accordance with the present invention is totally different from that of Takato et al. is yet another difference preventing anticipation of the present invention by Takato et al. With respect to whether the description in Takato et al. might possibly suggest the present invention so that no inventive step would be required, Applicants believe that the answer is clearly no. Takato et al. does not mention anything that would be applicable to the present invention, even in part. This is so because Takato et al. deals with an SLIC, the principal requirements for which are substantially different from the OLIC according to the present invention.

With respect to the Svala reference, Applicants have reviewed this reference and does not find it to be pertinent to the present invention. The low pass filter in Svala passes the voice band frequencies, rejecting the switcher frequencies, while the low pass filter in the case of the present invention is actually a loop filter for a control loop. The present invention implements it as an integrator, and the controlled parameter is the pairline DC-voltage, which is kept as constant in the OLIC implementation. This is not a principal feature of the present invention, and could be implemented in different ways. Nothing disclosed in Svala would be usable for an OLIC in the manner of the present invention, without substantial inventive steps.

In Paragraph 14 on page 6 of the Office Action, claim 6 is objected to as being dependent upon a rejected base claim, but is indicated as being allowable if rewritten in independent form so as to include the limitations of the base claim and any intervening claims. This is followed by a statement of reasons for allowable subject matter in Paragraph 16. This has been duly noted by Applicants.

In conclusion, claims 1-10 are submitted to clearly distinguish patentably over the art for the reasons discussed above. Therefore, reconsideration and allowance are respectfully requested.

If for any reason the Examiner finds the application other than in condition for allowance, the Examiner is requested to call the undersigned attorney at the Los Angeles, California telephone number (213) 337-6846 to discuss the steps necessary for placing the application in condition for allowance.

If there are any fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 50-1314.

Respectfully submitted,
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